

ONYANOBI ABEL- ANYEBE

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Summary: *As an applied chemist with more than 30 years' experience in teaching and research, I have mentored students, colleagues and the public. My passions are: teaching chemistry, engaging in result-oriented / problem-solving collaborative research, caring for the environment and motivating females. Conversion of renewable / sustainable materials and waste to useful compounds for industrial application is my major area of research interest. As a demonstration of my commitment to research, I have published papers in reputable international and local journals. I am an advocate of honesty, justice and fairness to all.*

EDUCATION**University of Jos (Unijos), Jos - Nigeria**

Doctor of Philosophy in Applied Physical Chemistry 2011

University of Jos

Master of Science in Chemistry 2002

University of Jos

Bachelor of Science (2nd Class Upper Division) in Applied Chemistry 1984

CAREER HISTORY**Houston Community College, Houston, Texas – USA**

Adjunct Faculty - Chemistry Department 2021 - Date

Texas Southern University Summer Outreach Program

Chemistry Instructor – Taught 4th – 12th Grade students Application of Chemistry 2018 & 2019

Texas Southern University, Houston, Texas - USA

Research Associate (J-1exchange visitor) – Researching / mentoring graduate students in the Environmental and Interdisciplinary Sciences Department 2017 – Date

Morgan State University, Baltimore, MD - USA

Research Associate (J-1exchange visitor) – Chemistry Department 2016 – 2017

University of Jos, Nigeria

Senior Lecturer (Part-time position) – Research / Taught undergraduate chemistry, Process Design / Petroleum Processing and Petrochemistry in the Science Laboratory Technology Department 2016

Benue State Polytechnic (Benpoly), Ugbokolo - Nigeria

Chief Lecturer - responsibilities 1996 - Date

Teaching physical / organic / industrial chemistry / research

Coordinator of Women in Technical Education and Employment (WITED- state and national level)

College of Education (COE), Oju - Nigeria

Lecturer 1993 – 1996

Taught general / inorganic / organic chemistry

Chaired Department of Chemistry

National Open University of Nigeria (NOUN), Otukpo Study Center

Facilitator 2009 – 2015

Taught physical, inorganic and general chemistry

St. Anne's Girls' Secondary School, Otukpo - Nigeria

Class Teacher 1990 – 1993

Taught general chemistry

Day Secondary School, Emuhu – Agbor, Nigeria

Class Teacher 1985 - 1990

Taught chemistry, physics and mathematics

Day Secondary School, Emuhu – Agbor, Nigeria

National Youth Service Corp (Taught chemistry, physics and mathematics) 1984 – 1985

ONYANOBI ABEL- ANYEBE

RESEARCH EXPERIENCE

Fatty amide formation by direct vegetable oil stripping (Doctoral Research):

The research focus was the synthesis of fatty amides (compounds of high commercial value) directly from fatty ester (available in abundance and renewable) without first stripping it to the fatty acid, thereby eliminating a process stage. Fatty esters are rarely used directly in this synthesis without first stripping them to fatty acids because of harsh reaction conditions such as high temperatures (100-220°C), long reaction times of 3-72 hours, catalysts and low product yields.

Research outcome:

A novel green method of synthesis was developed with optimum reaction temperature of 50°C, reaction time of 60 minutes, with a conversion as high as 89% with no catalyst. (3 peer-reviewed journal papers published).

Production of biogas / bio-oils from lignocellulose:

The quest for renewable and sustainable energy has set the stage globally for conversion of waste to energy. As a group of researchers, we studied the pyrolysis of corn cobs, stalks and leaves with and without catalyst at various temperatures and the products (bio-oil, biogas and bio char) were characterized (GC-MS). (5 peer-reviewed journal publications).

Conversion of plastic waste/ biomass to beneficial by-products through green incineration:

Solid waste management is a global problem. To address this problem, a green incinerator of simple design was constructed using locally available materials, and tested. The incinerator has capacity for significant solid waste reduction and conversion of emitted gas to beneficial by-product. (*Presented - SETAC 2017, Texas; ATINER 2014, Greece*).

Studies on the decomposition of citric acid (Master's Thesis)

Thermal decomposition of citric acid was carried out at various temperatures with and without dipotassium peroxydisulphate ($K_2S_2O_8$). Liquid product obtained was characterized via IR, UV/Visible and NMR (1 peer reviewed journal publication).

Bulk Copolymerization of Acrylonitrile and Methylacrylate (BS Thesis)

The study involved the co-polymerization of the two monomers and viscometric / kinetic analysis.

Current Research

Green synthesis of fatty amides directly from fatty esters: Characterization and quantification of products using IR, GC-MS; determination of optimum reaction conditions for each fatty ester; separation and purification of products. (Presented: ACS fall 2019 national meeting and expo)

MEMBERSHIP OF PROFESSIONAL BODIES

Member - Chemical Society of Nigeria (CSN)

Fellow - Institute of Chartered Chemists of Nigeria (ICCON)

Member - Women in Technical Education and Employment (WITED)

PROFESSIONAL SERVICES/ACTIVITIES

Chairman – 6th National Conference Organizing Committee of School of Tech – Benpoly

July, 2014

Member – JOWITED Editorial Board

2012 - Date

National Financial Secretary – WITED National Coordinating Committee (NCC)

2011 - Date

Student Adviser – Science Lab Tech Dept - Benpoly

2009 – Date

Participant / Writer - Report of Seminar on Research Management Organized by Jos-Carnegie Partnership (JCPC), Unijos

2009

Participant – Workshop on Fund Raising Fundamentals Organized by Unijos-Andrew Carnegie

Partnership Project	2008
Field Officer – UK-DFID desk study / field work on the solid waste generation and management in Makurdi Metropolis	2003
ONYANOBI ABEL- ANYEBE	
Secretary – CSN 26th International Annual Conference Organizing Committee	2003
Secretary – CSN Benue Chapter Zonal Conference Organizing Committee	2002
General Secretary – Chemical Society of Nigeria (CSN), Benue State Chapter	2002 - 2008
Local Coordinator – WITED Benpoly	1996 - Date
Exams. Officer – Chemistry Dept - COE	1994 - 1996
HOD – Chemistry Dept - COE	1993 – 1994
<ul style="list-style-type: none"> • Through WITED activities such as sensitization and enlightenment lectures, intervention with government and agencies, career guidance/counseling, mentoring services, etc. the following contributions were made: <ol style="list-style-type: none"> 1. Enhanced female participation in STEM programmes in my institution by 15% within 5 years as coordinator. 2. Planned and executed initiatives for environmental care and protection, which was later adopted by neighbouring schools and communities. 3. Influenced gender parity in appointments and training in the institution through writing and speaking in favour of eligible females. 4. Instituted merit awards for best females in the sciences in neighbouring high schools. 5. Established a protocol for the protection of females from harassment by staff and students. 	

PUBLICATIONS

Onyanobi Abel-Anyebe, Nabil Idris, Djene Keita, Kieran Ita Ekpenyong, Momoh Audu Yakubu, Fatty Amides in Minutes: Direct Formation from Fatty Esters in a Green Synthetic Process, *Science Journal of Analytical Chemistry*. Vol. 8, No. 1, 2020, pp. 18-28. doi: 10.11648/j.sjac.20200801.14

Anthonia, E. Eseyin1, **Onyanobi, Abel-Anyebe**, Juliet, D. Dodo, Kieran, I. Ekpenyong (2019) Isothermal, Dynamic and Kinetic Characteristics of Torrefied Corn Stalks. *Chemistry Research Journal*, 4(2):132-138

Nafisat Omotayo, **Onyanobi Abel-Anyebe**, Oluwasogo Olalubi, Obaid Ullah, Shahlla Mir, Opeyemi Ojekunle, Adedamola Olatoregun, Judith Anglin and Ayodotun Sodipe, (2018) An evaluation of the effect of graphene oxide on *Saccharomyces cerevisiae*. *African J. of Microbiology Res* 12 (47) 1050-1055 <https://doi.org/10.5897/AJMR2018.8965>

Anthonia E. Eseyin, Kieran I.Ekpenyong, Emad M. El-Giar and **Onyanobi,Abel-Anyebe** (2015): The Effect of Pd-Doped – Al₂O₃ on the Low-Temperature Thermal Decomposition of Corn Cobs and Leaves in Bio-oil Production. *The International Journal of Science and Technoledge* 3(2) 11-16 www.theijst.com

Anthonia Eseyin, Kieran I.Ekpenyong, S.M. Dangogo, **Onyanobi,Abel-Anyebe** and Emad M. El-Giar (2015): Product Distribution in the Low Temperature Conventional Pyrolysis of Nigerian Corn Stalks. *International Journal for Innovation Education and Research* 3(1) 51-68 www.ijer.net

Anthonia Eseyin, Kieran I.Ekpenyong, **Abel-Anyebe O.** and Dinesh Mohan (2014): Survey and Comparability of the Anaerobic Biodegradability of Corn Stalks and Cobs in Biogas production for Sustainable Energy Development in Nigeria. *Journal of Women in Technical Education (JOWITED)* 7(2) 118-125

Onyanobi Abel-Anyebe, Okawu, G & Kpabep, C (2014): Plastic Waste Management through Incineration as a Tool for National Development: CO₂ Mitigation and Other Beneficial By-products. *Journal of Women in Technical Education (JOWITED)* 7(2) 176-180

Anthonia Eseyin, K. I. Ekpenyong, **Onyanobi Abel-Anyebe** and Dinesh Mohan (2013): Particle Diameter And Nutrient Related Studies Of Anaerobic Biodegradation of Lignocellulose from Corn Stalks in Biogas Production for Sustainable Energy Development. *International journal of chemistry* 5(4) 66-72 <http://www.ccsenet.org/ijc/>

Ezeigbo, O. R., Ukpabi, C. F., **Abel-Anyebe, O.**, Okike-Osisiogu, F.U., Ike-Amadi, C. A. and Agomoh, N. G. (2013): Physicochemical Properties of Soil Contaminated with Refined Petroleum Oil In Eluama Community, Abia State, Nigeria. *International Journal of scientific research and management (IJSRM)* 1(8) 405-413 www.ijssrm.in

ONYANOBI ABEL- ANYEBE

Onyanobi Abel-Anyebe, Kieran I. Ekpenyong, and Anthonia Eseyin (2013): A Novel Synthetic Route to Fatty Amides in Non-aqueous Reaction of Fatty Esters with Ammonium Salts and Methyl Amine. *International Journal of Chemistry* 5(1) 80-86 <http://www.ccsenet.org/ijc/>

Onyanobi Abel-Anyebe, Kieran I. Ekpenyong, and Enenebeaku, C (2008): Heterogeneous Product Formation in NaOH Reaction with Heptadecanoic Acid. *International Journal of Chemical Sciences* 1(2) 346-34

Onyanobi Abel-Anyebe, Kieran I. Ekpenyong (2007): In Situ Fatty Ammonium Salt Formation in Sodium Hydroxide Hydrolysis of Groundnut Oil. *European Journal of Scientific Research* 16(2) 474-476 <http://www.eurojournals.com/ejsr.htm>

Onyanobi Abel-Anyebe and Ogwuche, E. (2006): Incineration of Plastics as an Alternative to Dumping. *African Journal of Natural Sciences* 9 177-179

Onyanobi Abel-Anyebe, Ekpenyong, K.I. and Ekwenchi M.M (2001): Effects of Dipotassium Peroxydisulphate Salt on the Thermal Decomposition of Citric Acid under varying Environmental Conditions. *Journal of Women in Technical Education* 3 68-77

Onyanobi Abel-Anyebe, Ekpenyong, K.I., Ocheke, N.A. and Anthonia Eseyin : Novel Elucidation of Dynamic Chemical Equilibrium in the Synthesis of Fatty Amides Directly from Peanut oil (Ready for submission)

Book – Abel-Anyebe, O. (2013): Reversible and Irreversible Reactions Explained. Gabbro Media Prints. Makurdi. Nigeria.

CONFERENCE PRESENTATIONS

American Chemical Society Fall 2019 National Meeting and Expo, August 25 – 29, 2019, San Diego, California, USA. Presentation: Confirmation and quantification of fatty amides and non-amides in direct vegetable oil stripping.

4th Green and Sustainable Chemistry Conference, 5 – 8 May, 2019, Dresden, Germany. Presentation: Quantification of Fatty Amides in Direct Fatty Ester Stripping Applying a Green Synthetic Process.

2018 Texas Southern University Research Week, March 26 – 30, Presentation: A Green Chemical Approach to Fatty Amide Synthesis from Fatty Esters.

2017 South – Central Regional Meeting of Society of Environmental Toxicology and Chemistry (SETAC), April 28-29, TSU, Houston. Paper title: Green-based incineration as a remediation option for plastic waste pollution in Nigeria

2nd Annual International Conference on Chemistry organized by Athens Institute for Education and Research (ATINER) 21ST – 24TH July, 2014, Athens, Greece. Paper title:
Local-Technology Green-based Incinerator in Plastic Waste Management for Urban and Rural Nigeria

6th National Conference of Women in Technical Education (WITED) 8th -11th October, 2012. Title of papers presented
: Plastic Waste Management as a Tool for National Development: Incineration byproduct, CO₂,
made Environmentally Harmless and Put to Use.
: Chemical Reversibility Physically and Uniquely Displayed in the Base Hydrolysis of a Fatty Ester.
: Plastic Waste Management in Nigeria: Need for More Awareness and Collective Participation.

35th Annual International Conference, Workshop and Exhibition of the Chemical Society of Nigeria (CSN) 17th – 21st September, 2012. Title of paper presented

: Versatility of Product Formation in Non-Aqueous Hydrolysis of a Fatty Ester as Precursors for Nanotechnology Application.

31st Annual International Conference and Exhibition of the Chemical Society of Nigeria (CSN) 22nd - 25th September, 2008.

Title of paper presented

: Heterogeneous Product Formation in NaOH hydrolysis of Heptadecanoic acid.

ONYANOBI ABEL- ANYEBE

29th Annual International Conference of the Chemical Society of Nigeria (CSN) 25th – 29th September, 2006. Title of paper presented

: In-situ Fatty Ammonium Salt Formation in Sodium Hydroxide Hydrolysis of Groundnut Oil.

1st National Conference of the School of Technology, Benue State Polytechnic, Ugbokolo 4th – 8th October, 2004. Title of paper presented

: Plastic Waste Management: A Recommendation for the Benue State Polytechnic.

26th Annual International Conference of the Chemical Society of Nigeria (CSN) 22nd - 26th September, 2003. Title of paper presented

: Incineration of Plastics as an Alternative to Dumping: A preliminary Report.

25th Annual International Conference of the Chemical Society of Nigeria (CSN) 23rd – 27th September, 2002. Title of paper presented

: Kinetics of the Thermal Decomposition of Dipotassium peroxydisulphate – Treated Citric Acid.

First Mini Conference of the Chemical Society of Nigeria (Benue State Chapter) 16th - 18th August, 2002. Title of papers presented

: Bulk Copolymerization of Acrylonitrile with Methylacrylate: A Kinetic Study.

: Female Participation in Science, Technology and Engineering Programmes: An untapped reservoir of Potentials.

24th Annual International Conference of the Chemical Society of Nigeria (CSN) 24th - 28th September, 2001. Title of paper presented

: Spectrophotocatalytic Studies on the Product of Thermal Decomposition of Citric Acid.

1st National Conference of Women in Technical Education (WITED) 9th – 11th October, 2000. Title of paper presented

: Studies on the Decomposition of K₂S₂O₈-Treated Citric Acid.

AWARDS

Top 50 proposals of Elsevier Foundation-ISC3 Green & Sustainable Chemistry Challenge - Scientific track	2019
Texas Southern University Research Week 1st Place Staff Oral Presentation	2019
Texas Southern University Research Week 1 st Place Staff Oral Presentation	2018
Texas Southern University Summer Scholars Academy award for Outstanding Service	2018
Tetfund Institution-Based Research Grant -	2014
Tetfund Conference Attendance Grant –	2013
Jos – Carnegie Partnership Female Intervention Fellowship -	2009
Professor Emovon Award for Best Graduating Chemistry Student –	1984
Merit Award – Chemistry Department, University of Jos –	1982

COMMUNITY SERVICE (2010 - Date)

Coordinator and consultant for study abroad programmes organized by Renaissance Study Aids and Consult (RENSAC), Otukpo - Nigeria

Coordinator of Global Height Tutorials (GHT): An annual 6 week-long vacation computer-based tutorials for secondary school students organized by RENSAC.

Organizer / Sponsor of computer training for GHT participants

Organizer/Sponsor/Trainer - Free computer training for females in my locality

Donor - Annual award for best graduating female chemistry student in two secondary schools.

- Notable achievements as coordinator of RENSAC include:

ONYANOBI ABEL- ANYEBE

1. Experience acquired by high school students from RENSAC programmes impacted positively. For instance, the winner of the award for best student in sign language, a girl, is presently admitted to a special education degree programme in the University of Jos. She heard of sign language for the first time at RENSAC.
2. High school students who had no prior knowledge of computer, acquired and demonstrated exceptional skills in computer application.
3. Sales of computer and study aids doubled with the introduction of tutorials.

COMPUTER SKILLS

Proficient in Microsoft Office; Word, Power point, Excel, etc and the usage of the World Wide Web

LANGUAGE SKILLS: Fluent in English Language, basic knowledge of French and German

PERSONALITY: Serious-minded, tolerant, jovial, friendly and always willingly to render help to others. I enjoy collaboration. My motto is 'small causes, great effects'.

REFEREES

Professor K.I. Ekpennyong, Chemistry Department, University of Jos, Nigeria

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Professor Sonya Good, Department of Chemistry, Texas Southern University, Houston Texas 77004

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Doctor Shodimu Emmanuel Olufemi , Department of Biology, Texas Southern University, Houston, Texas 77004

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